# FOREST RESEARCH NOTES

NORTHEASTERN FOREST EXPERIMENT STATION

Upper Darby, Pennsylvania

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## Returns From A White Pine Woodlot

Most of the forest land in the white pine region of the Northeast is owned in relatively small blocks or woodlots. The way these many small woodlots are managed can affect the forest economy of the entire region. Good forest management can increase the owner's income and provide more and better raw material for the wood processing industries.

An example of how such woodlots can be managed is being shown on the Massabesic Experimental Forest in southwestern Maine. Here an average-size woodlot of 50 acres has been under management since 1950.

On this woodlot there is a merchantable stand on 37 acres. The rest is either in young unmerchantable stands or in swamp land. A survey of the 37 acres in 1950 showed the following volume (in board feet, International $\frac{1}{4}$-inch rule):

| Species | Volume (Board feet) |
|---|---|
| White pine | 600,000 |
| Hemlock | 15,000 |
| Mixed hardwoods | 15,000 |
| Total | 630,000 |

The average volume per acre on the merchantable area then was 17,000 board feet. There was an average of 172 trees per acre over 5 inches d.b.h. Some 65 of these were white pine trees between 10 and 20 inches d.b.h.

Four annual cuttings have been made on this woodlot, beginning in 1950. The average cut was 15,000 board feet of sawlogs and 16 cords of pulpwood. This volume cut is slightly less than the estimated annual growth. About one-fifth of the merchantable part of the woodlot was cut over each year.

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No cutting was made in 1954. The 1954 and 1955 harvests will be combined to include a salvage operation made necessary by blowdown damage from the 1954 hurricanes.

Trees cut in the early harvests were the suppressed and weak trees, the trees that crowded more desirable stems, and a few of the large-crowned weeviled white pines. The harvest of such trees develops a forest of increasing productivity. All hardwood trees and the sections of softwood trees not merchantable for sawlogs are cut into pulpwood.

Additional provisions have been made for the development of new stands. Hardwood stumps have been treated with chemicals to reduce sprouting. Sapling pines on about 3 acres have been released. The best of these--about 200 trees per acre--were pruned. It has taken an average of 1½ days and 40 pounds of ammonium sulfamate a year for this kind of work.

The sawlogs and pulpwood were cut and yarded by a 3-man crew. Besides the usual hand tools, they used 1-man power saws, a 30-hp. track-type diesel tractor equipped with a boom and winch, and an iron-shod scoot. The trees were all cut into sawlog or pulpwood lengths at the stump.

Table 1.--Outlays and cash income received for annual cuts on the experimental woodlot

| Item | Year | | | | 4-year average |
|---|---|---|---|---|---|
| | 1950 | 1951 | 1952 | 1953 | |
| Outlays | | | | | |
| Cutting ..... man-hours .. | 71 | 178 | 131 | 72 | 113 |
| Yarding[1] ..... man-hours .. | 53 | 184 | 127 | 88 | 113 |
| ..... tractor-hours .. | 21 | 56 | 27 | 18 | 30½ |
| Equipment use[2] ..... dollars .. | 14 | 46 | 35 | 21 | 29 |
| Receipts | | | | | |
| Volume sold ..... M board feet .. | 12.7 | 24.0 | 12.4 | 10.0 | 14.8 |
| ..... cords .. | -- | 24.3 | 27.1 | 12.4 | 15.9 |
| Total sale value[3] .... dollars .. | 292 | 951 | 718 | 479 | 610 |

[1]Tractor costs for fuel, oil, and repairs ran about $1.55 per meter-hour on the Experimental Forest. One meter-hour is about equal to two running hours.

[2]Based on rates used on the Experimental Forest for operation and repair of equipment, as follows: Hand tools, 20 cents per 1,000 board feet or 10 cents per cord; tractor accessories (wire rope, boom, and scoot), 30 cents per 1,000 board feet or 10 cents per cord; power saws, 60 cents per 1,000 board feet or per cord.

[3]At roadside.

Costs varied each year. But, with an average wage rate of $1.10 per hour, the average direct work cost for logging was $248.60 a year (table 1). The tractor, the power saws, and other equipment cost $76.28 a year. There were no unusual weather or logging conditions to affect the work on this woodlot.

If a forest-land owner had made these cuts, using his own equipment and labor, he would have spent about 28 working days a year in logging. Motor fuel, oil, and repairs to his equipment would have taken about $76.28. He would also have taken another day and a half to work in the young stands and would have used about $8.00 worth of chemicals. Under these conditions, the woodlot would have brought him a cash income of $526.00 a year--nearly $18.00 a day for practicing forestry and improving his property.

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